

## CLAIMS

What is claimed is:

1. A sensor assembly for use in a vehicle seat cushion for detecting the presence of an occupant, said assembly comprising:
  - 5 a first member defining an internal bore;
  - a second member having a portion slidably disposed in said bore such that said first member is movably mounted relative to said first member about an axis;
  - a spring biasing said first member relative to said second member; and
  - a sensor device mounted in one of said first and second members.
- 10 2. The assembly of claim 1, wherein said sensor device is a magnet.
3. The assembly of claim 2 further including a hall effect sensor mounted relative to the other one of said first and second member and at a spaced  
15 position relative to said magnet, and wherein movement of said first member relative to said second member causes said hall effect sensor to detect the change in position of said magnet.
4. The assembly of claim 1, wherein said spring biases said first member  
20 relative to said second member in a direction parallel to said axis.
5. The assembly of claim 1, wherein said spring is a coil spring.

6. The assembly of claim 1, wherein said first member defines a stepped bore having a first internal diameter portion and a second internal diameter portion having a diameter less than the diameter of said first internal diameter portion, said stepped bore defining a shoulder between said first and second internal diameter portions, and wherein said portion of said second member includes an outwardly radially extending lip which is engageable with said shoulder to function as a stop to prevent movement of said first member relative to said second member.

7. The assembly of claim 6, wherein said second member defines a first external diameter portion slidably disposed adjacent said first internal diameter portion, and wherein said second member defines a second external diameter portion slidably disposed adjacent said second internal diameter portion.

8. The assembly of claim 6, wherein said spring biases said lip against said shoulder.

9. The assembly of claim 1, wherein one of said first and second members is adapted to be mounted on a sensor mat including a hall effect sensor.

10. The assembly of claim 9, wherein said sensor device is a magnet, and wherein said hall effect sensor is mounted relative to the other one of said first and second member and at a spaced position relative to said magnet such that movement of said first member relative to said second member causes said hall effect sensor to detect the position of said magnet.

11. The assembly of claim 1, wherein said first and second members define a spring chamber sized to accommodate different springs having differing spring constants

5           12     A method of assembling a sensor assembly for use in a vehicle seat cushion for detecting the presence of an occupant, the method comprising the steps of:

- a. providing a sensor assembly having first and second members movably mounted relative to one another;
- 10       b. selecting one of a plurality of springs having different spring constants;
- c. installing the one of a plurality of springs in the sensor assembly, such that the spring biases the first member relative to the second member;
- d. installing a sensor device in one of the first and second members;
- e. mounting the sensor assembly onto a mat adjacent a hall effect sensor
- 15     attached to the mat; and
- f. installing the mat on a vehicle seat cushion.

13. The method of claim 12 wherein the sensor assembly of step (a) is a first sensor assembly, and wherein the method further includes the steps of:

g. providing a second sensor assembly including first and second members  
5 having the same dimensions as the first and second members of the first sensor assembly;

h. installing another one of a plurality of springs having a different spring constant than the spring installed in step (c);

i. installing a second sensor device in one of the first and second members  
10 of the second sensor assembly;

j. mounting the second sensor assembly onto the mat adjacent a second hall effect sensor attached to the mat; and

k. subsequently to step (j), installing the mat on the vehicle seat cushion.

15 14. A method of assembling a sensor assembly for use in a vehicle seat cushion for detecting the presence of an occupant, the method comprising the steps of:

a. providing a sensor assembly having first and second members movably mounted relative to one another;

20 b. installing a spring in the sensor assembly, such that the spring biases the first member relative to the second member; and

c. selecting one of a plurality of magnets having different gauss characteristics;

d. installing the one of a plurality of magnets in one of the first and second  
25 members;

e. mounting the sensor assembly onto a mat adjacent a hall effect sensor attached to the mat; and

f. installing the mat on a vehicle seat cushion.

15. The method of claim 14 wherein the one of a plurality of magnets is disposed in a bore formed in one of the first and second members, and wherein one of a plurality of different sized plugs is disposed the bore to retain the one of a plurality of magnets.

16. The method of claim 14 wherein the sensor assembly of step (a) is a first sensor assembly, and wherein the method further includes the steps of:

- g. providing a second sensor assembly including first and second members
- 10 having the same dimensions as the first and second members of the first sensor assembly;
- h. installing another one of a plurality of a plurality of magnets having a different gauss characteristic than the magnet installed in step (c);
- i. mounting the second sensor assembly onto the mat adjacent a second hall
- 15 effect sensor attached to the mat; and
- j. subsequently to step (j), installing the mat on the vehicle seat cushion.